

CHRIS CHRISTIE

Governor

KIM GUADAGNO Lt. Governor STEFANIE A. BRAND

October 31, 2011

### Via UPS Overnight Delivery and Electronic Mail

Secretary Kristi Izzo Board of Public Utilities 44 South Clinton Avenue, 9<sup>th</sup> Floor P.O. Box 350 Trenton, New Jersey 08625-0350

Re: I/M/O the Board's Investigation of Capacity Procurement and

Transmission Planning BPU Dkt. No. EO11050309

Dear Secretary Izzo:

Enclosed for filing please find an original and ten (10) copies of the Division of Rate Counsel's comments in the above referenced matter. These comments are being submitted pursuant to the Board's Order setting additional hearings in this matter. An electronic copy of these comments is also being sent to the Board Secretary's e-mail account <a href="mailto:board.secretary@bpu.state.nj.us">board.secretary@bpu.state.nj.us</a>. A copy of these comments will also be circulated via the Board's electronic service list in this docket.

We are enclosing one additional copy of the materials transmitted. Please stamp and date the copy as "filed" and return it to our courier. Thank you for your consideration and assistance.

Respectfully submitted,

STEFANIE A. BRAND DIRECTOR, DIVISION OF RATE COUNSEL

By: <u>s/Diane Schulze</u>
Diane Schulze, Esq.
Asst. Deputy Rate Counsel

c: President Lee A. Solomon (via UPS Overnight Mail)
Commissioner Jeanne M. Fox (via UPS Overnight Mail)
Commissioner Joseph L. Fiordaliso (via UPS Overnight Mail)
Commissioner Nicholas V. Asselta (via UPS Overnight Mail)
Andrew Dembia, Esq. (via electronic and UPS Overnight Mail)
Service List (via BPU e-service list)

# I/M/O the Board's Investigation of Capacity Procurement and Transmission Planning BPU Docket No. EO11050309

# Comments of the New Jersey Division of Rate Counsel October 31, 2011

#### 1. Introduction

Rate Counsel applauds the Board for continued efforts to review New Jersey's energy needs and to develop a comprehensive policy to address those needs. Rate Counsel has previously filed comments on capacity issues facing the state and most recently testified at the legislative hearing held by the Board on October 14, 2011. Accordingly, in these comments, Rate Counsel will focus on issues raised at the legislative hearing or in filed comments. Rate Counsel thanks the BPU for this opportunity to address these issues that will affect New Jersey ratepayers well into the future.

#### 2. The P.JM Interconnection Process.

As recognized by most of the participants at the October 14 legislative hearing, the lack of new generation being built in New Jersey is due in part to problems with the PJM interconnection process. The length of time potential new generation spends in the interconnection queue and interconnection cost uncertainties were cited as obstacles to the construction of new generation in New Jersey. Changes to speed up this process and to reduce cost allocation uncertainties are currently under review at PJM. Rate Counsel supports these efforts and is hopeful that positive changes will be made by PJM to speed up the interconnection process.

### a. Generation Upgrade Cost Responsibility

PJM uses the "but-for" test to determine new generation upgrade cost responsibility, that is, the amount the interconnecting generator must pay for its impact on the system. PJM's "but-for" test often results in projections of transmission upgrade requirements for larger New Jersey generators that are greater than what would be required in the real world. This is because PJM is required (by Tariff) to test the reliability of the transmission system under unrealistic stresses that include the presence of all other generators in the same queue position. It is highly unlikely that all simultaneously queued generation proposals would be built as this could lead to excessive supply and margins too low for the generators. This well-understood dynamic is a significant problem with the interconnection queue study process.

The "cluster breakaway" proposal is one recommended way of addressing this "but-for" problem, as it allows a single proposed generator to be tested separately from the effects of other queued generators. It can also facilitate moving a project more quickly to the Interconnection Services Agreement (ISA) stage. Rate Counsel supports this proposed change but recommends that the Board encourage PJM to go further on this issue. For example, baseline reliability upgrades – those paid for by load through the transmission tariff – contribute to bolstering the system in ways that can also support generation interconnection. Identifying these baseline upgrades outside of the single year snap shot currently used in allocating transmission costs to new generation could facilitate movement through the interconnection queue. In sum, a more flexible approach to planning and allocating the cost of the transmission system should be undertaken by PJM, especially in dense-load areas such as northern New Jersey.

## b. Interconnection Transparency.

At the legislative hearing, President Solomon asked questions regarding the ability of a generator with Capacity Injection Rights "("CIRs") to "put something in the queue" and "kind of tie things up for a while." T38:15 – T39:21.

Rate Counsel believes that the publicly-available PJM generation interconnection queue data lacks important details and, accordingly, could allow some parties to "clog up" the queue. Many of the queue entries keep the developer or proposer confidential making it difficult to ascertain whether one entity is "clogging up the queue." Rate Counsel recommends that the proposed developer and the type of proposed unit be included in the summary information table and the posted feasibility, impact and facilities studies available on PJM's website. We also recommend that the reports contain more descriptive information on how anticipated transmission upgrades not modeled in the year studied could impact the proposed interconnection in future years.

#### c. Conclusion

In conclusion, it was generally recognized at the hearing that delays in the interconnection process and the allocation of PJM Interconnection costs create barriers to entry. Rate Counsel believes that the PJM stakeholder process should continue to investigate ways to improve the interconnection process. However, the failure of the PJM markets to support the construction of new generation serving New Jersey loads stems primarily from the lack of long term revenue certainty. The solution to the State's reliability lies not in the modification of PJM's interconnection process – although changes to the process are certainly needed – but in actions to provide the appropriate long term price assurance sufficient to support a long term investment in new plant.

<sup>&</sup>lt;sup>1</sup> See attachment A for more detail on what queue data is available from the PJM website.

#### 3. Structural Market Power

At the hearing, PJM's Independent Market Monitor ("IMM") spoke to the issue of structural market power. The IMM acknowledged that, "there is a substantial amount of structural market power in PJM and particularly in the capacity market" (T60:22-25) and then concluded that:

The final objective has to be that you want a competitive outcome. You want a price at the efficient level. You want a price which is as low as possible, consistent with the cost of providing the service.

T63:19-23.

Thus, the IMM suggested that even if there is structural market power, that is acceptable as long as the outcome appears sufficiently competitive. See, T60:22-T61:2, See also, T165:7-15 (June 17, 2011).

Rate Counsel believes that a large market share certainly suggests the existence of structural market power and the ability to erect barriers to entry. We agree with President Solomon's observation at the legislative hearing that the control of a substantial market share raises the specter of anticompetitive behavior. T64:21-23.

Fostering new generation from different generators is one way to address structural market power and this is a benefit of the LCAPP program. Rate Counsel urges the Board to examine all of the available options that could allow the LCAPP program to proceed, thereby easing new entry into the capacity market, reducing structural market power and contributing to capacity adequacy at reasonable prices.

Furthermore, as discussed at length at the legislative hearing, on-going PJM stakeholder processes are also considering changes to PJM rules around minimum offer prices, self-supply, and related topics. However, given the structure of PJM, incumbents may seek to utilize this process to modify the market rules to benefit themselves. The Board should look closely at the

composition and the voting power of the participants in the PJM stakeholder process. If incumbent generators have a controlling voice in the stakeholder process, the recommendations coming out of that process could be skewed to benefit those generators. Rate Counsel believes that the Board should work with PJM and all stakeholders to ensure that all interested parties are given fair representation in the PJM stakeholder process. In particular, as consumers are most directly affected by resource shortages, and ultimately bear the cost of adequate resources, the consumers' interests should be strongly represented.

Finally, there may be a reason for the Board to invoke its authority under EDECA<sup>2</sup> and further investigate (a) the competitiveness of New Jersey's supply (b) the barriers to entry that impede the addition of new supply, and (c) the steps that the Board can take to reduce those barriers. This may provide further information that will assist the Board in finding ways to overcome New Jersey's electricity capacity challenges.

#### 4 LCAPP Contract Duration.

Rate Counsel was asked at the hearing to offer an opinion on whether or not shorter-term bilateral contracts (such as a five-year term) would be preferable to longer terms (such as fifteen years). T191:10-15. While short term contracts may impose less risk on consumers, short term commitments may be insufficient to support new entry or may only support new entry if a substantial risk premium is reflected in the project's price. For example NRG, Energy Inc. in earlier filed comments noted that:

\_

Pursuant to N.J.S.A. 48:3-50 (2)(c)(5) the Legislature has provided: the Board of Public Utilities with ongoing oversight and regulatory authority to monitor and review composition of the electric generation and retail power supply marketplace in New Jersey, and to take such actions as it deems necessary and appropriate to restore a competitive marketplace in the event it determines that one or more suppliers are in a position to dominate the marketplace and charge anti-competitive or above-market prices.

Revenue risks from changes in regulations and laws, new transmission development, variations in load, and fuel prices make competitive developers reluctant to build new power plants without a means of hedging those risks over a period of time sufficient to allow them to earn a return on the capital required to build new plants. <sup>3</sup>

As part of its Competitive Market Plan, the American Public Power Association ("APPA") recommends a "portfolio with a blend of long-, medium-, and short-term resource contracts to minimize the price risk associated with any one resource arrangement." APPA notes that longer-term contracts could be used for new generation that requires "more revenue certainty to secure financing and ensure a reasonable cost of capital." On the other hand, according to the APPA, medium and short term contracts "could be targeted to older, largely depreciated units and other resource that do not demand high up-front capital commitments."

Rate Counsel supports *retaining flexibility* for any proposed contract term, under any particular arrangement the Board may consider for long-term contracts for supply resources.

There may be instances where a five-year term provides a sufficient incentive to allow for a new generation proposal to go forward, but based on our understanding of the risks of financing power plants, longer term commitments up to fifteen years are usually required.

With LCAPP, as currently structured, the contract over fifteen years provides risk protection for ratepayers, as it is indexed to the prevailing market price for capacity (clearing price of the Base Residual Auction). It also provides long-term certainty of being available as a capacity resource in New Jersey.

6

<sup>&</sup>lt;sup>3</sup> New Jersey Board of Public Utilities Investigation of Capacity Procurement and Transmission Planning, Comments of Ray Long, Vice President, Government Affairs for the Northeast Region, NRG Energy Inc. BPU Docket No. EO11050309, June 17, 2011.

<sup>&</sup>lt;sup>4</sup> New Jersey Board of Public Utilities Investigation of Capacity Procurement and Transmission Planning, 2011 Update, Joint Comments of the Public Power Assn of N.J. and the American Public Power Assn., APPA's Competitive Market Plan, p. 16, BPU Dk No. E011050309, June 17, 2011

## 5. Independent Agents Conducting Transmission Studies.

The question was raised at the legislative hearing whether there were other RTOs using third party consultants to do their interconnection studies. T40:23-25. Based on a review of the generation interconnection queue provisions of the New York, New England and Midwest ISO open access transmission tariffs, it appears that in other jurisdictions third-parties are allowed to conduct studies, if there is agreement among the parties – the RTO, the transmission owner, and the developer – that such an arrangement would help make the study process more efficient.<sup>5</sup> Transmission owners in MISO sometimes use third-party contractors to do transmission interconnection studies, for example if in-house resources are overburdened.<sup>6</sup>

There are generally three types of generation interconnection studies conducted as part of the interconnecting process: the feasibility study, the system impact study, and the facilities study. All three studies require the execution of sophisticated power flow models to inform the outcome of the study. Such modeling can certainly be completed by third-parties. The input assumptions would need to be vetted by both the RTO and the TOs to ensure appropriate representation of the electrical system. PSE&G has proposed allowing independent agents to carry out facilities studies and Rate Counsel supports this recommendation. For feasibility and system impact studies, it is understandable that PJM and the transmission owners need to be involved, as they know the relevant regional system the best and the regional effects of an interconnection can be complex. However, Rate Counsel recommends that if PJM or TO inhouse resource constraints are preventing the studies from being completed in a timely manner,

\_

<sup>&</sup>lt;sup>5</sup> Midwest ISO Open Access Transmission Tariff, Attachment X- Generation Interconnection Procedures, Section 13.4, Non-parties Conducting Studies. New York ISO Open Access Transmission Tariff, Attachment X, Generation Interconnection Procedures, Article 26, Subcontractors, Sections 26.1 General. ISO New England Open Access Transmission Tariff, Schedule 22, Large Generator Interconnection Procedure, Section 13.4 Third Parties Conducting Studies.

<sup>&</sup>lt;sup>6</sup> Based on a conversation with Paul Muncy, staff member, Midwest ISO ("MISO"), 10/21/2011.

then contracting with third parties to perform such studies (with the involvement of key PJM or TO staff as necessary) should be an option for developers under the PJM tariff.

## 6. LCAPP Contract Structure.

Although the assertion that the LCAPP contracts are similar to the non-utility generation ("NUG") contracts mandated decades ago has been repeatedly debunked, it keeps coming back. This time it was Dr. Salmon on behalf of the New Jersey Energy Coalition who compared the LCAPP contracts to the NUG contracts. T119:22-T120:4. However, the LCAPP contracts and the NUG contracts are very dissimilar.

New Jersey's above-market NUG power purchase agreements originate from the Public Utility Regulatory Policies Act of 1978, 16 U.S.C.§ 824a et seq. ("PURPA"). PURPA was enacted in response to the perceived energy crisis of the late 1970's with the specific purpose of reducing the nation's reliance on imported oil. PURPA was intended to encourage the development of independently owned power plants using renewable energy sources such as solar, wind, and biomass, and energy efficient technologies, such as cogeneration. Section 210 of PURPA required utilities to purchase any and all power produced by PURPA "Qualifying Facilities" ("QFs") at the cost which the utilities would otherwise have incurred in producing or otherwise obtaining additional power, i.e., the utilities' "avoided costs." In the end, the cost assumptions underlying many NUG contracts proved to be wildly inaccurate and the disparity between forecasted and actual avoided costs significantly contributed to high energy costs in New Jersey.

There are three substantial differences between the NUG contracts and the LCAPP contracts. First, the NUG contracts were based not on the non-utility generator's costs but instead the utility's determination of its avoided cost. In contrast, the LCAPP contracts were

won through a competitive procurement. Thus, LCAPP offers should be cost based, and their price shaped by competition.

Secondly, the NUG contracts purchase the entire output of the facility at a fixed price for 20-25 years. By contrast, the LCAPP contract is a contract for differences, and is for only the capacity value of the plant. That is, the LCAPP contract is a hedge – and a symmetrical hedge at that - for the difference in price between the price that the LCAPP facility gets in the capacity market and the LCAPP contract price. The symmetrical hedge means that if capacity market prices climb above the LCAPP contract price, the difference is credited to ratepayers. This is one possible outcome, depending on the overall dynamics of the capacity market. Alternatively, if capacity prices fall below the LCAPP contract price (which is a possible outcome that results from a relative net increase in supply in the capacity market), then the LCAPP contract provides that ratepayers will pay the difference between the contract price and the market price for capacity. Thus, the amount spent or gained by ratepayers is set in the market.

Third, the LCAPP contracts should not result in rate increases similar to the NUG contracts. At the present time, LCAPP resources comprise a small share (roughly 10%) of New Jersey's total capacity obligation, with the price of the remaining capacity obligation, not otherwise hedged, tied to the short-term capacity market (RPM) price. Moreover, capacity prices comprise only 15% of the generator's total revenue stream. T72:20-21. Thus, only the <a href="difference">difference</a> between the capacity market price and LCAPP contract price is recovered through LCAPP payments funded by ratepayers and that difference in price is only a small part of the total price for power paid by New Jersey ratepayers. The structure of the hedge in concert with the capacity obligation in New Jersey means that the LCAPP contracts represent a very minimal

risk to ratepayers with a very high likelihood of a positive upside. Thus, Rate Counsel believes that unlike the NUG contracts, the LCAPP contracts are a good deal for ratepayers.

## 7. The LCAPP "Subsidy".

There was much discussion at the legislative hearing regarding the impact that the LCAPP "subsidy" could have on the RPM market. For example, Glen Thomas, on behalf of the PJM Power Providers Group expressed his concern that the LCAPP subsidy would be taken into account when "people are considering where to spend their capital dollars." T107:1-2. Similarly, Professor Willig, testifying on behalf of "Public Service" claimed that the subsidization of new entry would harm the market and "frustrate the development of the very competition that I think is the intended outcome of the approach which is based on LCAPP." T303:3-18. According to Professor Willig, "the subsidy mechanism takes the market out of its key role of guiding when and what capacity is best to bring to the system." T305:5-10.

This argument presumes that without the LCAPP, "the market" will efficiently guide when and what new capacity will be built. But this has not been shown to be true. RPM is a spot market that only affects short-term, low-investment decisions, such as whether or not to retire an existing plant, or to offer demand response. As noted by PSEG witness Dr. Roy J. Shanker, the current regime favors either no new construction, or construction at "the lowest possible capital costs;" and the existing RPM structure has "several biases that make higher capital investment risky." <sup>8</sup> As noted in earlier comments filed by Rate Counsel, in offering a one-year commitment and payment, RPM will primarily influence the shorter lead time, short-

-

10

<sup>&</sup>lt;sup>7</sup> Professor Willig did not specify whether he was testifying on behalf of the utility, PSE&G, or the generator, PSEG Power, LLC or both.

<sup>&</sup>lt;sup>8</sup> New Jersey Board of Public Utilities Investigation of Capacity Procurement and Transmission Planning, PSEG Power's Reply Comments PSEG Power LLC and PSEG Energy Resources & Trade LLC, Affidavit of Dr. Roy J. Shanker, para 37, Docket No. EO11050309, July 12, 2011.

term decisions to provide (or not provide) capacity for the upcoming delivery year, <u>e.g.</u>, decisions such as whether the price is high enough to provide demand response or whether to keep a high-cost plant in operation for an additional year or to retire or mothball the plant now. These decisions generally have short lead times and involve relatively small investments, and a one-year commitment and payment can influence them. The RPM construct, however, is not capable of effectively signaling the need for mid-merit and baseload capacity, or properly incenting construction of such capacity. Thus it is not the LCAPP "subsidy" that discourages long-term investment but the structure of the RPM market.

Secondly, and perhaps more to the point, the LCAPP contract is not a subsidy; it is a guarantee of payment for provision of capacity based on the results of a competitive procurement process for a long-term product. The underlying contract-for-differences structure is present in electricity markets nation-wide and globally – bilateral contracts define the price, and delivery occurs through whatever form of spot market exists in a given region. Buyers and sellers settle based on the difference between spot and contract price; no subsidies are involved. The underlying contract price is tied to the cost of constructing the resource, and has been subject to competitive procurement pressures, and thus it represents a return to fundamental market economics, in contrast to the distorted, administratively-based, one-year pricing construct represented by the flawed RPM capacity paradigm. The LCAPP's time scale – fifteen years – is

\_

<sup>&</sup>lt;sup>9</sup> See, <u>I/M/O the Board's Investigation of Capacity Procurement and Transmission Planning</u>, Rate Counsel Reply Comments, July 12, 2011, BPU docket No. E011050309, pp.4, 7-8.

See, for example, Hogan, William, "Competitive Electricity Market Design: A Wholesale Primer", December 1998, at page 9: "The price of the generation contract would depend on the agreed reference price and other terms and conditions. Generators and customers might agree on dead zones, different up-side and down-side price commitments, or anything else that could be negotiated in a free market to reflect the circumstances and risk preferences of the parties. Whether generators pay customers, or the reverse, depends on the terms. However, system operator need take no notice of the contracts, and have no knowledge of the terms. Such contracts for differences have become common in restructured electricity markets." Available at http://www.hks.harvard.edu/fs/whogan/empr1298.pdf.

tied more closely to the physical and book life of a large generation resource than is the one-year payment guarantee afforded generators through RPM.

#### 8. Conclusions

- Delays in the interconnection process and the allocation of PJM Interconnection costs create barriers to entry. The PJM stakeholder process should continue to investigate ways to improve the interconnection process.
- The failure of the PJM markets to support the construction of new generation serving New Jersey loads stems primarily from the lack of long term revenue certainty.
- The solution to the State's reliability lies not in the modification of PJM's interconnection process although changes to the process are certainly needed but in actions to provide the appropriate long term price assurance sufficient to support a long term investment in new plant.
- The Board should consider further investigating the existing structural market power and barriers to entry of new generation in New Jersey.
- While short term contracts may impose less risk on consumers, short term commitments may be insufficient to support new entry or may only support new entry if a substantial risk premium is reflected in the project's price. Rate Counsel supports retaining flexibility for any proposed contract term.
- Rate Counsel recommends that if PJM or Transmission Owner in-house resource constraints are preventing interconnection studies from being completed in a timely manner, then the use of third-party contracting for such studies should be offered as an option for developers.
- There are substantial differences between NUG contracts and the LCAPP contracts. LCAPP contracts are competitive, cost based contracts-for differences for capacity only, tied to prices in the capacity markets.
- The LCAPP contract is not a subsidy; it is a guarantee of payment for provision of capacity based on the results of a competitive procurement process for a long-term product. The underlying contract price is tied to the cost of constructing the resource, and has been subject to competitive procurement pressures, and thus represents a return to fundamental market economics.

Thank you for the opportunity to provide Rate Counsel's comments in this matter.

#### **ATTACHMENT A**

### **PJM Interconnection Queue Data**

Table 1 below summarizes the PJM "active" generation interconnection queue data for New Jersey. Table 2 lists the queue data for "active" natural gas fueled proposals in the queue. The tables illustrate the following:

- The data provide status (active, under construction, in-service, partially in-service), queue date (i.e., date of entry to queue), size (capacity MWC, and energy MWE), location (both EDC territory and point-of injection substation locale), fuel, projected in-service date, and availability of completed studies.
- Active queue entries reflect primarily solar, wind and natural gas fueled supply sources, but natural-gas fired capacity dominates the credited capacity injections proposed ("MWC").
- While substation injection points are provided, proposer identity is not included in the summary data provided. Links to feasibility, impact and facilities studies are included in the data table on the website, and these reports sometime provide this information, but not always.
- Type of unit data is not provided in the summary information table on the website. As with proposer identity, the linked reports sometimes, but not always provide this information.
- Solar and wind proposal summary data illustrate the reduced capacity value for these resources. The MWC for solar is 36% of the MWE or installed solar capacity, and the MWC for wind is 16% of the MWE or installed capacity rating of the resource.

Table 1. Summary of PJM Interconnection Queue Data, New Jersey, by Fuel & EDC, for "Active" Status

Data as of 10/11/2011

2 444 45 47 147 127 1										
		MWE - Installed Capacity, MW					MWC - Credited Capacity, MW			
		EDC Territory					EDC Territory			
					Total All					Total All
	Fuel	AEC	JCPL	PSEG	EDCs		AEC	JCPL	PSEG	EDCs
	Coal	15	-	60	75		15	-	60	75
	Methane	8	-	-	8		8	-	-	8
ē	Natural Gas	2,548	1,992	3,285	7,825		2,548	1,992	3,285	7,825
Active	Nuclear	-	-	50	50		-	-	50	50
⋖	Other	-	-	45	45		-	-	45	45
	Solar	600	487	15	1,102		227	166	6	398
	Wind	1,419	-	20	1,439		233	-	3	236
	Active Total	4,589	2,479	3,475	10,543		3,030	2,158	3,448	8,636

Source: PJM Active Generation Queue data, available at <a href="http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx">http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx</a>. Tabulation by Synapse.

Table 2. PJM Generation Interconnection Queue Data for New Jersey

**Natural Gas Fired Generation Proposals** Transmission Queue Date PJM Substation MWC MWE Queue Owner MW Status In Service County Q90 7/31/2006 Mickleton 230kV AEC 650 650 650 Active 2012 Q2 Gloucester S107 7/31/2007 Mickleton 230kV 580 580 580 Active 2011 Q2 Gloucester AEC 120 W1-039 2/26/2010 Pedricktown 230kV 10 Active 2011 Q2 Salem AEC 10 W2-039 6/28/2010 Clayville 69kV 2015 Q2 Cumberland AEC 63 63 Active Active Salem W3-174 | 10/29/2010 | Churchtown 230kV 1 AEC 194 194 194 2015 Q2 W3-175 10/29/2010 Churchtown 230kV 2 **AEC** 371 371 371 Active 2015 Q2 Salem W4-015 11/29/2010 Mickleton 230kV 1 340 340 2015 Q2 Gloucester AEC 340 Active W4-016 11/29/2010 Mickleton 230kV 2 2015 Q2 AEC 340 340 340 Active Gloucester R11 2013 Q2 9/20/2006 South River JCPL 440 440 440 Active Middlesex 2009 Q2 T76 9/28/2007 South River 230kV **JCPL** 307 27 27 Active Middlesex W4-009 11/22/2010 Raritan River 230kV **JCPL** 725 725 725 Active 2015 Q2 Middlesex W4-021 11/30/2010 Atlantic-South River 230kV **JCPL** 800 800 800 Active 2015 Q2 Middlesex S60 2008 Q2 **ESSEX** 6/27/2007 Essex 26kV **PSEG** 63 63 63 Active S61 6/27/2007 Tosco 230kV **PSEG** 29 20 20 Active 2007 Q3 Union T43 9/19/2007 Essex 230kV **PSEG** 178 178 178 Active 2012 Q2 **ESSEX** T45 205 2011 Q2 9/19/2007 Hudson 230kV **PSEG** 205 205 Active Hudson T77 10/5/2007 Linden 230kV **PSEG** 1,250 44 44 Active 2007 Q4 Union T107 11/21/2007 Essex 230kV **PSEG** 675 675 Active 2012 Q1 **ESSEX** 675 W2-023 5/28/2010 Sewaren 230kV **PSEG** 625 625 625 Active 2014 Q2 Hudson 2014 Q2 W2-024 5/28/2010 Kearny 138kV **PSEG** 625 Middlesex 625 625 Active W4-023 12/1/2010 Kearny 138kV **PSEG** 300 300 2014 Q2 Hudson 300 Active W4-024 12/1/2010 Hudson 230kV **PSEG** 550 550 550 Active 2014 Q2 Hudson 9,367 7,825

Source: PJM Active Generation Queue data, filtered for New Jersey natural gas fired supply proposals, available at <a href="http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx">http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx</a>.

Note: The queue data screen also contains information on the availability of feasibility, impact, and facilities studies, the availability of either or both an Interconnection Service Agreement (ISA) and a Construction Service Agreement (CSA), and the type of fuel and State of proposed interconnection.